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**Aid and Golf Club for Facilitating Learning How to Play Golf.**

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The present invention relates to an aid for facilitating the learning how to play golf which is suitably to be fastened on a golf club having a golf head and a shaft as well as to a 10 golf club to facilitating the learning how to play golf.

The aid according to the invention for facilitating the learning of the golf game as well as the golf club according

to the invention especially can be used for facilitating and 15 the learning of putting of the golf ball on the green.

In the golf sport one of the most difficult tasks is the putting of the ball on the green. Experienced golf players are alleging that in the golf game winning or loosing is decided 20 on the green. The main problem during the learning of the putting is residing in the fact that almost all players do not have a learned eye for the correct alignment of the striking face of the club head in an angle of 90° with respect to the desired ball rolling line. Followingly, most 25 players are not successful to bring the ball onto the right rolling line directly leading to the hole.

The conventional method of training for schooling the eye of the player is consisting to have a second person observing 30 the ball rolling line to correct the player until the striking face of the club head is extending in the correct angle with regard to the ball rolling line. Here, however, a further problem arises in that the major part of the helping persons are not in the position to recognize the correct an-

gular position of the striking face of the club head or to give the player the correct instructions, respectively. Only if the striking face of the golf club is extending in an angle of  $90^\circ$  with respect to the desired ball rolling line then it is possible to bring the ball onto the desired rolling line. Even with a deviation of only  $2^\circ$  from a distance of only one meter away from the hole the ball is missing the hole. Since the orientation of the eyes with respect to the hole is corresponding to an unnatural aim, the player with the available aids cannot determine himself whether he aimed correctly or incorrectly. A training therefore only is possible with a second helping person. Since, however, many golf players prefer to train alone and since a corresponding helping person not always is available, a technical solution of this problem is desirable.

In the present prior art for this purpose different aids are available. On the one hand, mirrors are known which by means of magnets are attached to the golf club as this for example is disclosed in the JP 2000093562A or the US 6095930. The disadvantage of these devices, however, is consisting in the fact that these devices only can be attached to golf clubs specially produced for this purpose. Further, with these apparatus' it is not possible to adjust these in such a way that they also can be used by golf players who are holding the striking face of the golf club not accurately perpendicular and parallel to the ground but instead for example forwardly or backwardly tilted or inclined with respect to the level of the ground. The same problem is existing, too, in connection with the golf club disclosed in US 5433444 having a prism apparatus fixedly attached to the head thereof. Here, too, on the one hand, a special golf club is necessary and, on the other hand, there is no possibility to adjust the apparatus to individual different attitudes of the club.

Finally, the apparatus according to US 2822614 is existing. Here a prism or mirror device is screwed onto the lower end of the shaft of the golf club by means of a screw clamp. This device already is having a pivotability around one axis. This apparatus, however, is very laboursome to mount and to de-mount. Further, here, too, the necessary flexibility is not given for the case that the player is holding the club with the striking face tilted forwardly or backwardly.

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It is therefore the task to be solved by the present invention to improve such an aid for facilitating the learning how to play golf in such a way that this aid easily can be attached and detached to and from the different golf clubs available on the market and can be adjusted to the individual attitude of the golf club held by the player.

According to the invention, the above task is solved by an aid for facilitating the learning how to play golf according to the defined species which by means of a stand having joints is connected with the club which provides for the possibility of pivoting the apparatus around an axis parallel to a striking face of the club head and around an axis perpendicular to the striking face of the club head.

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Further, the above task according to the invention is solved, too, by a golf club for facilitating the learning how to play golf having a club head and a shaft which is containing an optical redirection device which by means of a stand having joints is connected with the club which provides for a pivoting of the apparatus around one axis parallel to a striking face of the club head and around one axis perpendicular to the front edge of a striking face of the club head.

A very simple apparatus for redirecting the image is containing one or more reflecting surfaces redirecting the image. In a most simple case it is simply a mirror attached in the correct angle.

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An improved optical quality can be achieved by the feature that the apparatus is containing a prism for deviating the image.

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In this connection, it is of special advantage if the prism is a rectangular prism or a prism foil. The latter has the advantage of a reduced weight.

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Further, it is possible, too, to provide the apparatus by means of a TV-camera oriented perpendicular to the front edge of a striking face of the club head and a monitor or TV-screen provided at the shaft of the club or at the club head. For example, a small LCD-screen can be used as a monitor.

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Additionally, the apparatus can be provided with a laser pointer which more detailedly is showing the correct orientation of the club head.

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To find the correct position of the club head more easily, the apparatus can be provided with a suitable cross-wire.

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Due to the above, the aid can be used by players, too, which deliberately or by habit are holding the striking face of the club head not perpendicular to the ground but instead slightly tilted forward or backward (e.g. to achieve additional advantages by means of a spin or twist). This habit in many cases is kept during the putting. Further, the aid according to the invention such can be used by players, too,

who are holding the shaft of the club not exactly perpendicular but slightly inclined with respect to the ground.

Further, it is especially preferred to connect the apparatus by means of a joint with the club which is providing for a pivoting of the apparatus around one axis perpendicular to the front edge of the striking face of the club head.

In the following, the present invention is more detailedly described with reference to an embodiment shown in the drawings:

FIGURE 1 shows a perspective representation of the aid for facilitating the learning how to play golf according to the invention; and

FIGURE 2 shows a perspective representation of an adapter by means of which the aid according to the invention can be attached to any golf club.

Figure 1 is showing a perspective representation of an aid according to the invention for facilitating the learning how to play golf. The aid 10 is having an adapter 12 provided with magnets and is performed such that it can be attached to the majority of golf clubs available on the market. Above the adapter 12 a connecting piece 14 is provided containing a joint 16 which is pivotable around an axis parallel to the front edge of the striking face of the club head and is lockable as well above the same a joint 18 pivotable around an axis 20 and lockable therein which is perpendicular to the front edge of the striking face of the club head.

On the upper end of this connecting piece 14, there is provided a means 22 for redirecting the image. This for example

could be a prism, a rectangular prism, a mirror or a mirror foil or a TV-camera with a monitor.

Reference number 24 designates the line of sight of the player, 26 and 28 designates cross-wires which can be attached to the apparatus 22 to further improve the possibilities of aiming in connection with the aid according to the invention.

According to a further embodiment of the invention, the apparatus for redirecting the image directly can be attached to the shaft of a golf club, even permanently, or can be incorporated into the corresponding shaft of the club. According to the present rules of the golf game, then such a club however can be used as a training apparatus and cannot be used in competition. Corresponding alterations of the rules however are possible after the introduction of the present invention.

Further instead of the optical redirecting device each a TV-camera oriented perpendicular to the front edge of the striking face of the club head and a monitor at the shaft of the club can be used according to the invention. As a monitor a LCD-display would be especially suitable.

For the use the aid shown in Figure 1 by means of the adapter 12 provided with magnets directly is attached to the club head of the golf club. The aid according to the invention enables the player when addressing the golf ball to simultaneously orient the striking face of the club head to the target/hole precisely and to control the same. To this end, in the area of vision of the optical deviation device 22 cross-wires 26, 28 are provided enabling a precise aiming of the target/hole without averting the glance from the ball and the

club head. According to the invention therefore a hundred percent precise orientation of the club is achievable. A faults estimation when determining the rolling line of the ball, which even is happening to expert golf players, with  
5 the aid according to the invention immediately can be corrected since from the image redirecting device it is immediately recognizable whether the desired rolling line of the ball is correct or not. The aid according to the invention is serving all golf players as an optimal training aid to correctly train the most important stroke during the golf game,  
10 namely, the stroke for putting. In this connection, it is especially important that by means of the aid according to the invention the stroke is exactly trained in such a way as this is described in all text books of the golf sport, namely, to  
15 keep the eyes exactly perpendicular above the ball and above the club head while addressing the ball, orienting the club and during the stroke. The player by looking along the arrow  
24 into the optical device 22 of the aid according to the invention is forced to keep the eyes absolutely correct above  
20 the ball and the club head which, too, when training without this aid is absolutely necessary for a good stroke. The training with the aid according to the invention is forcing the player to adopt the text book posture to learn the necessary exact orientation of the club head.

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The aid 10 according to the invention is suitable without restriction for right-handed or left-handed players.

A special advantage of the aid according to the invention is  
30 residing in the fact that the aid according to the invention simply and belately can be attached to almost any golf club available on the market and can be removed therefrom in the same way. This is achieved by means of the adapter 12 according to the invention. Such an adapter 12 according to the in-

vention is shown in Figure 2 in a detailed perspective representation.

The adapter 12 is having a piece of tube 30 in the form of a  
5 hollow cylinder sitting on a thin elastic plate 32 of a basically rectangular shape. At the front corners of said plate 32, each in cylindrical receptacles 34, 36 there are provided highly effective permanent magnets. At the bottom end of the cylindrical magnet receptacles 34, 36 there are provided  
10 stops 38, 40 serving for the exact orientation of the aid during the attachment on the club head.

The attachment is done such that the stops 38, 40 are contacting the front upper edge of the club head while the permanent magnets provided in the receptacles 34, 36 are holding the aid on the club head. Since usually the upper surface of the club head not is exactly straight, the elasticity of the plate 32 is serving the purpose that the permanent magnets provided in the receptacles 34, 36 can follow the curvature  
20 of the top side of the club head ensuring an excellent magnetic fixation of the aid.

Since further there are golf clubs on the market having an upper end of the striking face which is performed as a relatively thin upwardly projecting ledge which would mean that  
25 the aid according to the invention by the means of the permanent magnets provided in the receptacles 34, 36 could not safely be fastened, there is provided on the side of the plate 32 opposite to these a further rectangular permanent magnet 42 forming a further magnetic fixing means for the aid according to the invention together with the slightly overlapping elastic plate 32. By means of this side of the  
30 adapter 12 the aid according to the invention then can be at-

tached at the backward top edge of a striking face of a golf club performed as a thin ledge.

Further, at the top edge of the piece of tube 30 there are  
5 provided two exactly opposite slot-like recesses 44, 46. There a corresponding ledge provided at the bottom end of the intermediate piece 14 can be attached such that the adapter can be turned around 180° and nevertheless can be attached in the correct orientation with respect to the striking face  
10 with the adapter 12.

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